The specification was objected to for minor informalities. More specifically, the use of the phrase "rugged shapes" in the specification was objected to as not accurately reflecting the figures. The Applicant respectfully disagrees. As the Examiner points out, one definition of "rugged" is "having a rough uneven surface". In analyzing this definition further, it is noted that "uneven" may be defined as "having irregularities of surface (as breaks, indentations or roughness)", or "varying from the straight or parallel" (Webster's Third New International Dictionary of the English Language, published by Merriam-Webster). The Applicant respectfully submits that, accordingly, the term "rugged" can be considered to be descriptive of an aspect of the claimed invention, in that, for example, separator 30 as shown in Fig. 1 has "indentations" (i.e., the recesses that alternate with the projections of the drawing), or, alternatively, has contours that "vary from the straight and parallel", as shown in the given view. Accordingly, withdrawal of the objection is respectfully requested.

The disclosure was further objected to for use of the phrase "fuel cells stack". Withdrawal of this objection is respectfully requested in view of the amendments to the specification submitted herewith by way of a substitute specification.

The disclosure was further objected to as referring to claims. Withdrawal of this objection is respectfully requested in view of the amendments to the specification submitted herewith by way of a substitute specification.

The disclosure was further objected to as missing descriptions for Figs. 10 and 11, and for there being an incomplete sentence as the top of page 18. The disclosure was further objected to as stating that coat layer 68 was mentioned previously, but that the Examiner cannot find this previous mention. Withdrawal of these objections is respectfully requested in view of the amendments to the specification submitted herewith by way of a substitute specification.

Claims 5 and 7 were objected for minor informalities. Withdrawal of the objection is respectfully requested in view of the amendments set forth above.

Claims 1-26 were rejected under 35 USC 112, second paragraph, as being indefinite. Withdrawal of this rejection is respectfully requested in view of the claim amendments set forth above.

Claims 21-23 were rejected under 35 USC 102(b) as being anticipated by Tajiima et al. (Tajima) (US 4,225,654).

To anticipate a claim under § 102, a single prior art reference must identically disclose each and every claim element. See Lindeman Machinenfabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). If any claimed element is absent from a prior art reference, it cannot anticipate the claim. See Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997). In view of the foregoing authority, the Applicant respectfully submits that the cited reference does not support the asserted rejection.

Independent claim 21 relates to a gas separator for fuel cells. Among other things, the gas separator as recited in claim 21 comprises a separator base plate unit and a coat layer that covers at least a surface of the separator base plate unit. Claims 22 and 23, as claims dependent on claim 21, incorporate its limitations. Consequently, Tajima does not anticipate claims 21-23 for at least the reason that there is no disclosure in Tajima of a coat layer as required by the claims. Therefore, withdrawal of the rejection of claims 21-23 as anticipated by Tajima is respectfully requested.

Claims 1-7 are rejected under 35 USC 102(e) as being anticipated by Mukohyama et al. (Mukohyama) (US 5,798,188). Requirements for sustaining an anticipation rejection have been outlined above. Mukohyama fails to meet these requirements with respect to claims 1-7.

Independent claim 1 recites a gas separator for fuel cells constructed as a laminate of plural members, the gas separator being one of the plural members. The gas separator includes, among other features, at least two plates with rugged shapes formed in respective faces thereof, bonded to each other across the respective other faces thereof, and a member located in a space defined by the rugged shapes between the at least two plates to be in contact with the plates. Claims 2-7 incorporate the features of claim 1 by dependency thereon.

The Applicant respectfully disagrees with the characterization by the Examiner of the limitations of claim 1 as "product-by-process" limitations not to be accorded "patentable weight." The limitations define structure independent of any particular process: "bonded" is clearly not restricted to any specific method for effecting the bonding. In any event, Mukohyama does not anticipate the claimed invention for at

least the reason the Mokohyama does not disclose a gas separator used in a laminate structure, the gas separator comprising at least two plates bonded together, and including a member in a space defined by rugged shapes of the at least two plates, as required by the rejected claims. Accordingly, withdrawal of the rejection of claims 1-7 as anticipated by Mukohyama is respectfully requested.

Claim 1-9, 11, 16, 19 and 20 were rejected under 35 USC 102(b) as being anticipated by JP 58-93170. However, the cited reference does not support the asserted rejection.

Claims 1-7 were discussed above. Claim 8 is an independent method claim that includes similar recitations to those of claim 1, and claims 9, 11, 16, 19 and 20 incorporate the limitations of claim 8 by dependency thereon. Consequently, JP 58-93170 does not anticipate the rejected claims for at least the reason that JP 58-93170 does not disclose bonding at least two plates having rugged shapes to each other across respective faces thereof, and locating a member in a space defined by the rugged shapes of the at least two plates, as required by the rejected claims. Therefore, withdrawal of the rejection of claims 1-9, 11, 16, 19 and 20 as anticipated by JP 58-93170 is respectfully requested.

Claims 12-15, 21-23, 25 and 26 were rejected under 35 USC 102(b) as being anticipated by Bossel (US 5,034,288). Bossel fails to support the asserted rejection.

Independent claim 12 includes similar recitations to those of claim 21, already discussed above. Independent claim 14 is a method claim with recitations similar to those of claim 12. Claims 13 and 25 depend on claim 12, and consequently incorporate its limitations. Claims 15 and 26 depend on claim 14, and consequently incorporate its limitations. Therefore, Bossel does not anticipate the rejected claims for at least the reason that there is no disclosure in Bossel of a coat layer as required by the each of the rejected claims. Accordingly, withdrawal of the rejection of claims 12-15, 21-23, 25 and 26 as anticipated by Bossel is respectfully requested.

Claims 1-5, 7-11, 16-20 and 24 were rejected under 35 USC 102(b) as being anticipated by Wilkinson et al. (Wilkinson) (US 5,521,018). However, Wilkinson does not support the asserted rejection.

Independent claims 1 and 8 were discussed earlier. Independent claim 10 is a method claim for manufacturing a gas separator for fuel cells constructed as a laminate of plural members, the gas separator being one of the members. The method includes providing at least two plates, laying the at least two plates on each other via a material that forms a member and is interposed between the at least two plates, and press molding the at least two plates so as to form rugged shapes in surfaces of the at least two plates simultaneously with bonding them at least two plates to each other.

Claims 1-4 and 7 depend on claim 1; claims 9, 11, 16, 19 and 20 depend on claim 8; and claims 17, 18 and 24 depend on claim 10; thus, the noted dependent claims incorporate the limitations of the independent claims they respectively depend upon.

Accordingly, Wilkinson does not anticipate the rejected claims for at least the reason that Wilkinson does not disclose at least two plates with rugged shapes formed in respective faces thereof, bonded to each other across the respective other faces thereof, and a member located in a space defined by the rugged shapes between the at least two plates to be in contact with the plates, as required by claims 1, 8 and 10. Therefore, withdrawal of the rejection of claim 1-4, 7-11, 16-20 and 24 as anticipated by Wilkinson is respectfully requested.

Claims 1-26 were rejected under 35 USC 102(e) as being anticipated by Yoshimura et al. (Yoshimura) (US 6,291,094). Independent claims 1, 8 and 10 have been amended above to recite "a cooling fluid for cooling down the inside of the fuel cells is introduced as a fluid passing through the flow path defined by at least one of the rugged shapes". This feature is absent from Yoshimura. Claims 2-7 depend on claim 1, claims 9, 11, 16, 19 and 20 depend on claim 8, and claims 17, 18 and 24 depend on claim 10. Consequently, claims 1-11, 16-20 and 24 are allowable over Yoshimura for at least the reason that they include the newly-added feature. Independent claims 12, 14, 21 and 23, and thus the claims dependent thereon, each includes the feature of insert members, also absent from Yoshimura. Therefore, each of claims 1-26 recites at least one feature not disclosed by Yoshimura, and consequently the asserted anticipation rejection cannot be sustained. Accordingly, withdrawal of the rejection of claims 1-26 as anticipated by Yoshimura is respectfully requested

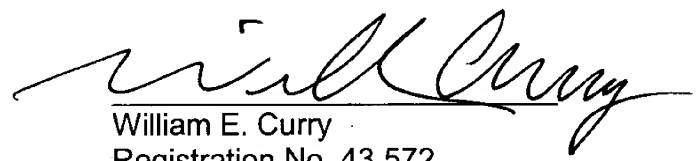
Claims 1-5, 7-11, 16-20 and 24 were further rejected under 35 USC 102(e) as being anticipated by Walsh (US 6,096,450). These claims and associated dependencies were discussed above. Walsh does not support the asserted rejection of the claims for at least the reason that Walsh does not disclose at least two plates with rugged shapes formed in respective faces thereof, bonded to each other across the respective other faces thereof, and a member located in a space defined by the rugged shapes between the at least two plates to be in contact with the plates, as required by claims 1, 8 and 10. Accordingly, withdrawal of the rejection of claims 1-5, 7-11, 16-20 and 24 as anticipated by Walsh is respectfully requested.

In light of the above discussion, the Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance.

The Examiner is invited to contact the undersigned at (202) 220-4323 to discuss any matter concerning this application. The Office is authorized to charge any fees under 37 C.F.R. 1.16 or 1.17 related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

Dated: 1/3/03



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VERSION OF AMENDMENTS MARKED UP TO SHOW CHANGES

1. (Twice Amended) A gas separator for fuel cells, said fuel cells being constructed as a laminate of plural members including an electrolyte layer and electrode layers, said gas separator being included in said fuel cells as one of said plural members and having [predetermined] rugged shapes that are formed in both faces to define a flow path of a fluid passing through inside said fuel cells, a cooling fluid for cooling down the inside of the fuel cells is introduced as a fluid passing through the flow path defined by at least one of the rugged shapes;

wherein at least two [thin] plates with the [predetermined] rugged shapes formed in respective one faces thereof are bonded to each other across the respective other faces thereof to form said gas separator,

said gas separator comprising a member that is located in a space defined by the [predetermined] rugged shapes between said at least two [thin] plates to be in contact with said two [thin] plates.

4. (Twice Amended) A gas separator for fuel cells in accordance with claim 1, wherein each of said at least two [thin] plates is a metal [thin] plate.

5. (Twice Amended) A gas separator for fuel cells in accordance with claim 1, wherein the fluid passing through the flow path defined by the [predetermined] rugged shapes in said fuel cells is [selected among] one of a hydrogen containing gaseous fuel, an oxygen containing oxidizing gas, and a cooling fluid for cooling down the inside of said fuel cells.

6. (Twice Amended) A gas separator for fuel cells in accordance with claim 4, wherein said at least two [thin] plates are mainly composed of either one of stainless steel and aluminum.

7. (Amended) A fuel cells stack receiving supplies of a hydrogen-containing gaseous fuel and an oxygen-containing oxidizing as and generating an electromotive force through electrochemical reactions,

said fuel cell [cells] stack comprising gas separators for fuel cells in accordance with claim 1.

8. (Twice Amended) A method of manufacturing a gas separator for fuel cells, said fuel cells being constructed as a laminate of plural members including an electrolyte layer and electrode layers, said gas separator being included in said fuel cells as one of said plural members and having [predetermined] rugged shapes that are formed in both faces to define a flow path of a fluid passing through inside said fuel cells, a cooling fluid for cooling down the inside of the fuel cells is introduced as a fluid passing through the flow path defined by at least one of the rugged shapes;

said method comprising the steps of:

(a) providing at least two [thin] plates that have the [predetermined] rugged shapes formed in respective one faces thereof, and

(b) bonding said at least two [thin] plates to each other across the respective other faces thereof to form said gas separator,

wherein said step (b) comprises the step of:

(b-1) locating a [predetermined] member in a space defined by the [predetermined] rugged shapes between said at least two [thin] plates to be in contact with said at least two [thin] plates in the course of bonding said at least two [thin] plates to each other.

9. (Twice Amended) A method in accordance with claim 8, wherein said [predetermined] member located between said at least two [thin] plates in said step (b-1) is an electrically conductive material.

10. (Twice Amended) A method of manufacturing a gas separator for fuel cells, said fuel cells being constructed as a laminate of plural members including an electrolyte layer and electrode layers, said gas separator being included in said fuel

cells as one of said plural members and having [predetermined] rugged shapes that are formed in both faces to define a flow path of a fluid passing through inside said fuel cells, a cooling fluid for cooling down the inside of the fuel cells is introduced as a fluid passing through the flow path defined by at least one of the rugged shapes;

said method comprising the steps of:

(a) providing at least two [thin] plates;

(b) laying said at least two [thin] plates one upon the other via a material that forms a [predetermined] member and is interposed between said at least two [thin] plates; and

(c) press molding said at least two [thin] plates laid one upon the other in said step (b), so as to form the [predetermined] rugged shapes in surfaces of said at least two [thin] plates simultaneously with bonding said at least two [thin] plates to each other,

wherein said step (c) comprises the step of:

(c-1) forming said [predetermined] member in a space defined by the [predetermined) rugged shapes between said at least two [thin] plates to be in contact with said at least two [thin] plates.

11. (Amended) A method in accordance with claim 8, wherein each of said at least two [thin] plates is a metal [thin] plate.

12. (Twice Amended) A gas separator for fuel cells, said fuel cells being constructed as a laminate of plural members including an electrolyte layer and electrode layers, said gas separator being included in said fuel cells as one of said plural members and having a [predetermined] rugged shape that is formed in surface thereof to define a flow path of a fluid passing through inside said fuel cells,

said gas separator comprising:

a separator base plate unit that is composed of a [thin] plate and has a plurality of apertures passing through a thickness of said separator base plate unit;

insert members that are mainly composed of an electrically conductive material and are respectively inserted into said plurality of apertures to form a convex structure on at least one face of said separator base plate unit; and

a coat layer that is mainly composed of an electrically conductive material and covers over at least surface of said separator base plate unit and said insert members inserted into said separator base plate unit, which is in contact with an adjacent member adjoining to said gas separator in said fuel cells.

13. (Amended) A fuel cell [cells] stack receiving supplies of a hydrogen-containing gaseous fuel and an oxygen-containing oxidizing gas and generating an electromotive force through electrochemical reactions,

said fuel cell [cells] stack comprising gas separators for fuel cells in accordance with claim 12.

14. (Twice Amended) A method of manufacturing a gas separator for fuel cells, said fuel cells being constructed as a laminate of plural members including an electrolyte layer and electrode layers, said gas separator being included in said fuel cells as one of said plural members and having a [predetermined] rugged shape that is formed in surface thereof to define a flow path of a fluid passing through inside said fuel cells,

said method comprising the steps of:

(a) providing a separator base plate unit composed of a [thin] plate;

(b) perforating said separator base plate unit at [predetermined] positions to form a plurality of apertures passing through a thickness of said separator base plate unit;

(c) inserting insert members, which are mainly composed of an electrically conductive material, respectively into said plurality of apertures, so as to form the [predetermined] rugged shape in surface of said separator base plate unit; and

(d) forming a coat layer that is mainly composed of an electrically conductive material and covers over at least surface of said separator base plate unit and said insert members inserted into said separator base plate unit, which is in contact with an adjacent member adjoining to said gas separator in said fuel cells.

16. (Amended) A method in accordance with claim 8, wherein said [predetermined] member located between said at least two [thin] plates in said step (b-1) is a thermally conductive material.

17. (Amended) A method in accordance with claim 10, wherein the material that forms said [predetermined] member is an electrically conductive material.

18. (Amended) A method in accordance with claim 10, wherein the material that forms said [predetermined] member is a thermally conductive material.

19. (Amended) A method in accordance with claim 16, wherein each of said at least two [thin] plates is a metal [thin] plate.

20. (Amended) A method in accordance with claim 11, wherein said at least two [thin] plates are mainly composed of either one of stainless steel and aluminum.

21. (Amended) A gas separator for fuel cells, said fuel cells being constructed as a laminate of plural members including an electrolyte layer and electrode layers, said gas separator being included in said fuel cells as one of said plural members and having a [predetermined] rugged shape that is formed in surface thereof to define a flow path of a fluid passing through inside said fuel cells,

said gas separator comprising:

a separator base plate unit that is composed of a [thin] plate and has a plurality of apertures passing through a thickness of said separator base plate unit;

insert members that are mainly composed of an electrically conductive material and are respectively inserted into said plurality of apertures to form a convex structure on at least one face of said separator base plate unit; and

a coat layer that covers over at least surface of said separator base plate unit and said insert members inserted into said separator base plate unit, which forms the flow path of the fluid in said fuel cells.

22. (Amended) A fuel cell [cells] stack receiving supplies of a hydrogen-containing gaseous fuel and an oxygen-containing oxidizing gas and generating an electromotive force through electrochemical reactions,

said fuel cell [cells] stack comprising gas separators for fuel cells in accordance with claim 21.

23. (Amended) A method of manufacturing a gas separator for fuel cells, said fuel cells being constructed as a laminate of plural members including an electrolyte layer and electrode layers, said gas separator being included in said fuel cells as one of said plural members and having a [predetermined] rugged shape that is formed in surface thereof to define a flow path of a fluid passing through inside said fuel cells,

said method comprising the steps of:

(a) providing a separator base plate unit composed of a [thin] plate;

(b) perforating said separator base plate unit at [predetermined] positions to form a plurality of apertures passing through a thickness of said separator base plate unit;

(c) inserting insert members, which are mainly composed of an electrically conductive material, respectively into said plurality of apertures, so as to form the [predetermined] rugged shape in surface of said separator base plate unit; and

(d) forming a coat layer that covers over at least surface of said separator base plate unit and said insert members inserted into said separator base plate unit, which forms the flow path of the fluid in said fuel cells.

24. (Amended) A method in accordance with claim 10, wherein each of said at least two [thin] plates is a metal [thin] plate.

25. (Amended) A method in accordance with claim 12, wherein said [thin plates are] plate is mainly composed of either one of stainless steel and aluminum.

26. (Amended) A method in accordance with claim 14, wherein said [thin plates are] plate is mainly composed of either one of stainless steel and aluminum.